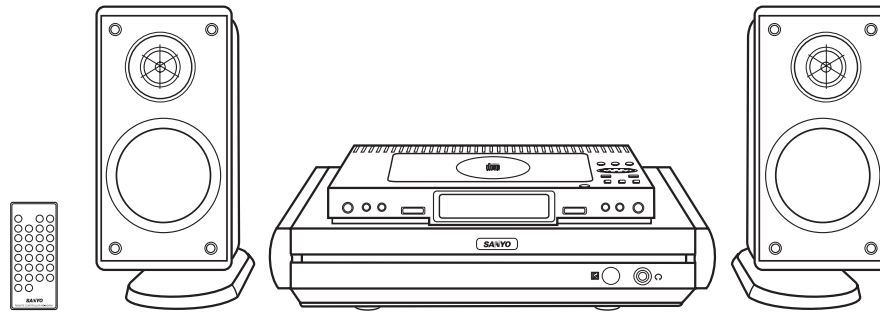


## Service Manual

## Micro Component System

## DC-MCR50 (XE)



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PRODUCT CODE No.  
129 664 02

LASER BEAM SAFETY PRECAUTION

- Pick-up that emits a laser beam is used in this CD player section.

**CAUTION :**  
USE OF CONTROLS OR ADJUSTMENTS  
OR PERFORMANCE OF PROCEDURES  
OTHER THAN THOSE SPECIFIED HEREIN  
MAY RESULT IN HAZARDOUS RADIATION  
EXPOSURE

LASER OUTPUT ..... 0.6 mW Max. (CW)  
WAVELENGTH ..... 790 nm

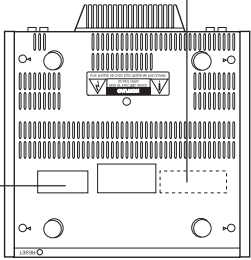
CAUTION – INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

ADVARSEL – USYNLIG LASER STRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION, UNDGÅ UDSÆTTELSE FOR STRÅLING.

VARNING – OSYNLIG LASER STRÅLNING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRÅLEN ÄR FARLIG.

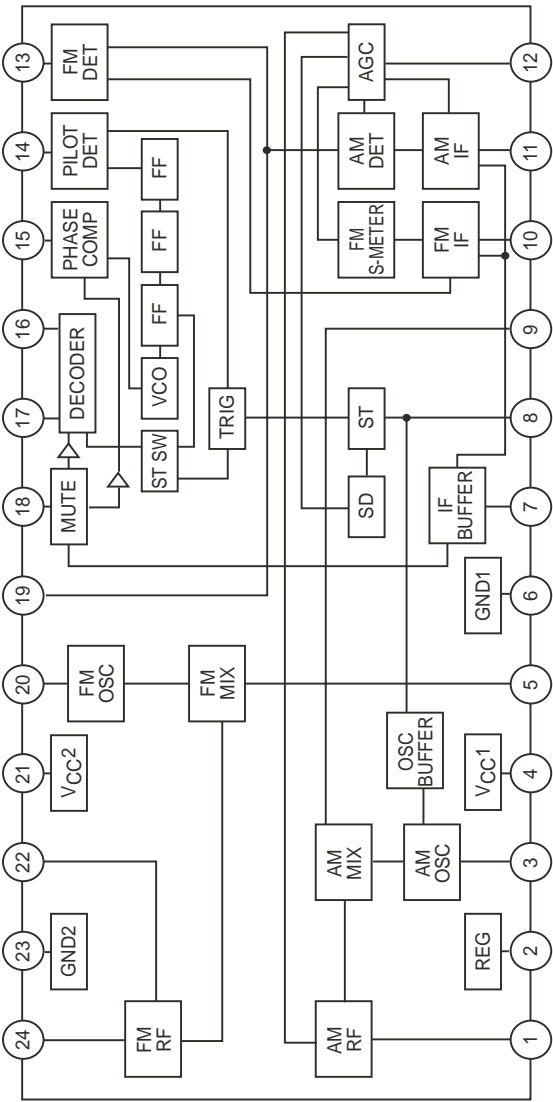
VORSICHT – UNSICHTBARE LASERSTRAHLUNG TRITT AUS, WENN DECKEL GEÖFFNET UND WENN SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT IST. NICHT, DEM STRAHL AUSSETZEN.

VARO – AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTITTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

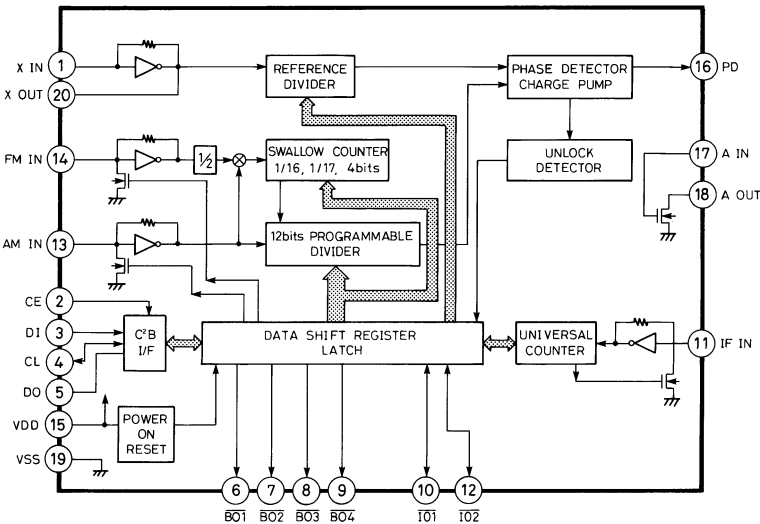


IC BLOCK DIAGRAM & DESCRIPTION

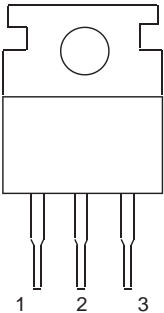
IC101 LA1823 (FM/AM MIX.)



IC102 LC72131 (PLL)



IC401 KIA7808 (Regulator)



Pin No.	Function
1	INPUT
2	COMMON
3	OUTPUT

## TUNER ADJUSTMENTS

Use a plastic screw driver for adjustments.

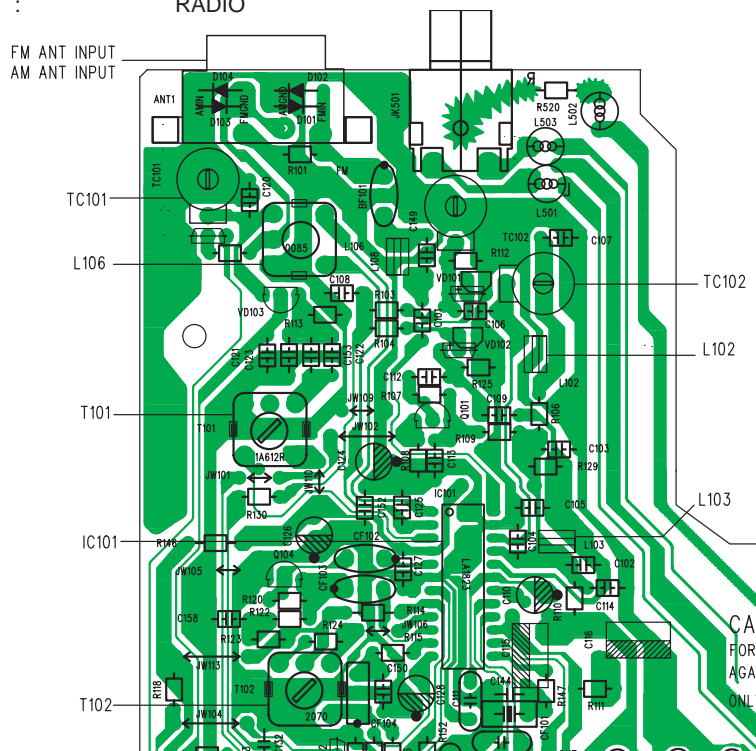
Adjust the intermediate frequency of AM and FM to the frequency of ceramic filter.

Supply voltage : DC 12.0V

Phones impedance : 32 ohms

Function switch : RADIO

### a. Parts Location



### b. AM Adjustment

BAND SELECT SWITCH: AM.

Step	Adjusting circuit	Tuning Frequency	Input Connection		Output Connection		Adjustment Parts	VTVM Oscilloscope OR VT. VOLT.
			Measurement	Input	Measurement	Output		
1	IF (450 KHz)	999 kHz	AM Sweep Genertor	Loop ANT	VTVM Oscilloscope	IC101PIN19(H) IC101PIN6(E)	T102	
2	Tuning	522 KHz	—	—	Digital Voltmeter	C131(H), C131(E)	T101	1.50V+/- 0.05 V
3	Coverage	1611 kHz	—	—	—	—	—	Confirm 7.8V+/-0.8 V
4	Tracking	603 kHz	AM Signal Generator	Loop ANT	VTVM Oscilloscope	C146TU(L) IC101 pin6(E)	L106	Maximum
5		1404 kHz	—	—	—	—	TC101	

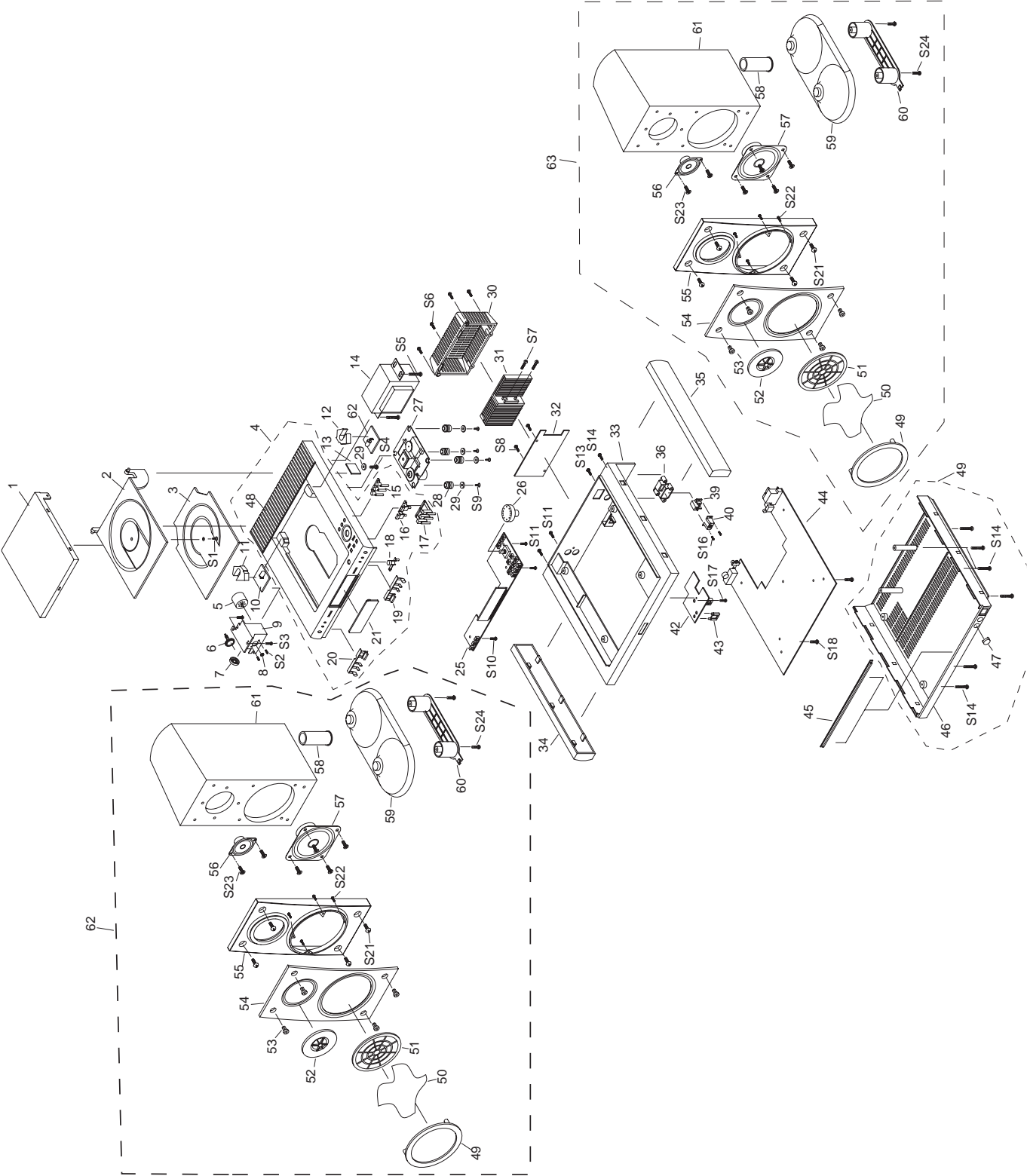
### b. FM Adjustment

BAND SELECT SWITCH: FM.

FM Dummy Antenna : 75 ohm unbalance

Step	Adjusting circuit	Tuning Frequency	Input Connection		Output Connection		Adjustment Parts	VTVM Oscilloscope
			Measurement	Input	Measurement	Output		
1	IF (10.70 MHz)	98.0 MHz	FM Sweep Genertor	IC101(5)H IC101(6) E	VTVM Oscilloscope	IC101PIN19(H) IC101PIN6(E)		 (Non-adjustment)
2	Tuning	87.5 MHz	—	—	Digital Voltmeter	C105(H)	L103	2.0V+/- 0.2V
3	Coverage	108 MHz	—	—	Voltmeter	C105(E)	—	Confirm 6.5V+/- 0.8V
4	Tracking	90.0 MHz	FM Signal Generator	C110 (H)	VTVM Oscilloscope	C146TU(L) IC101 pin6(E)	L102	Maximum
5		106.0 MHz	—	IC101(6)E	—	—	TC102	

EXPLODED VIEW(CABINET & CHASSIS)



## PARTS LIST

### PRODUCT SAFETY NOTICE

EACH PRECAUTION IN THIS MANUAL SHOULD BE FOLLOWED DURING SERVICING. COMPONENTS IDENTIFIED WITH THE IEC SYMBOL  $\Delta$  IN THE PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN OF SPECIAL SIGNIFICANCE. WHEN REPLACING A COMPONENT IDENTIFIED , USE ONLY THE REPLACEMENT PARTS DESIGNATED, OR PARTS WITH THE SAME RATINGS OF RESISTANCE, WATTAGE OR VOLTAGE THAT ARE DESIGNATED IN THE PARTS LIST IN THIS MANUAL. LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS MUST BE MADE TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE PRODUCT TO THE CUSTOMER.

**CAUTION :** Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.  
Regular type resistors are less than 1/4W carbon type and 0 ohm chip resistors.  
Regular type capacitors are less than 50V and less than 1000 $\mu$ F of Ceramic type and Electrolytic type.

### PACKING & ACCESSORIES

REF.NO.	PART NO.	DESCRIPTION
	645 062 1918	INSTRUCTION MANUAL
	645 027 2073	POLY BAG,PWR CORD
	645 044 1943	POLY BAG,I/B
	645 062 2014	POLY BAG,UNIT
	645 062 2007	POLY BAG,SPK
	645 062 2021	POLY FOAM,KIT
	645 062 2083	CARTON CASE
	$\Delta$ 645 023 3463	POWER CORD
	645 061 6280	REMOTE CTL,RC29-100000-010
	645 061 6297	ANTENNA LOOP
62	645 062 0652	SPK BOX L,LEFT
63	645 062 0669	SPK BOX R,RIGHT

### CABINET & CHASSIS

REF.NO.	PART NO.	DESCRIPTION
1	645 062 1659	CD DOOR
2	645 062 1437	CD DOOR BKT
3	645 062 1567	CD DOOR LENS
4	645 062 0591	ASSY CABINET TOP
6	645 062 1383	PULLEY WORM GEAR
7	645 062 1284	CD DOOR GEAR
8	645 062 1376	MOTOR PULLEY
9	645 062 1420	MOTOR BKT
11	645 062 1611	TRANSPARNT LENS L
12	645 062 1628	TRANSPARNT LENS R
15	645 062 1338	KNOB BASS
16	645 062 1321	KNOB TUNING
17	645 062 1369	KNOB PRESS
18	645 062 1505	KNOB CD DOOR,OPEN
19	645 062 1512	KNOB FUNCTION
20	645 062 1352	KNOB SW,MONO/STEREO
21	645 062 1574	CD DISPLAY LENS
26	645 062 1345	KNOB VOLUME
27	645 062 1208	CD DECK MECHANISM
28	645 033 3446	RUBBER SILICON,HARDNESS
29	645 027 1373	WASHER METAL
30	645 062 1635	CAB REAR COVER, HEAT SINK COVER
31	645 062 1222	HEAT SINK
33	645 062 1307	CABINET MIDDLE
34	645 062 1482	PANEL SIDE L,LEFT
35	645 062 1499	PANEL SIDE R,RIGHT
36	645 062 1406	AC SOCKET BKT
40	645 033 0391	AC SKT COVER
43	645 055 7514	REMOTE RECEIVER BKT
45	645 062 1598	DECOR FRANT LENS
46	645 062 1314	CABINET BOTTOM
47	645 062 1536	REMOTE LENS
48	645 062 1642	CABINET TOP
49	645 062 0584	ASSY CABINET BOTTOM

### FIXING PARTS

REF.NO.	PART NO.	DESCRIPTION
S10	645 023 6594	SCREW ST 3X8,DISPLAY BD
S11	645 023 6594	SCREW ST 3X8,ANT JACK, OPTICAL JACK
S13	645 023 6594	SCREW ST 3X8,AUX JACK, RCA JACK
S14	645 062 1116	SCR 3X15,CAB BTM TO CAB TOP
S16	645 023 6617	SCREW ST 3X10,AC SOCKET
S17	645 023 6594	SCREW ST 3X8,H/JACK BD
S18	645 023 6594	SCREW ST 3X8,MAIN BD
S1	645 062 1086	SCR 2X5,CD DOOR LENS
S2	645 062 1109	SCR 2.6X4,MOTOR
S3	645 023 6594	SCREW ST 3X8,MOTOR BKT
S4	645 027 1168	SCR 3X8,CD DOOR SW
S5	645 062 1116	SCR 3X15, PWR TRANS TO CAB BTM
S6	645 023 6594	SCREW ST 3X8, H/S COVER TO CD TRAY
S7	645 023 6587	SCREW ST 3X8,IC TO H/S
S8	645 023 6594	SCREW ST 3X8,AUDIO BD
S9	645 033 0247	SCR 2.6X8,CD DECK

### ELECTRICAL-PARTS

REF.NO.	PART NO.	DESCRIPTION
5	645 062 1215	CD DOOR MOTOR
14	$\Delta$ 645 062 0683	PWR TRANS,9023FS
39	645 032 9760	AC SOCKET S-1-1225
	645 062 0928	2P CONNECTOR,SPEAKER
	645 042 9569	HSG 6P,MAIN CN902 TO CD DECK
	645 062 1000	HSG 2P,MAIN CN706 TO LED BD
	645 062 1017	HSG 4P,MAIN CN704 TO CN804
	645 062 1024	HSG 4P,MAIN CN303 TO CN305
	645 062 1031	HSG 5P,MAIN CN301 TO CN801
	645 062 1048	HSG 7P,MAIN CN302 TO CN304
	645 062 1055	HSG 14P,MAIN CN703 TO CN708
	645 062 1062	HSG 5P, MAIN CN903 TO CD DOOR SW
	645 062 1079	FFC CABLE 16P, MAIN CN901 TO CD DECK
	645 062 1185	HSG 12P,MAIN CN701 TO CN709
	645 062 1192	HSG 13P,MAIN CN702 TO CN707

PARTS LIST

LED 1 P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
10	614 327 0034	ASSY,PWB,LED 1(Only initial)
LED01	645 062 0881	LED

CD DOOR SW P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
13	614 327 0058	ASSY,PWB,CD DOOR SW (Only initial)
SW001	645 062 0836	MICRO SW
SW002	645 062 0836	MICRO SW

DISPLAY P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
25	614 327 0010	ASSY,PWB,DISPLAY(Only initial)
LD701	645 062 0843	LCD DISPLAY,LCD701
LE701	645 062 0881	LED,LED701
LE702	645 062 0881	LED,LED702
SW701	645 062 0829	SW TACT,POWER
SW702	645 062 0829	SW TACT,MO/ST
SW703	645 062 0829	SW TACT,INTRO
SW704	645 062 0829	SW TACT,AUX
SW705	645 062 0829	SW TACT,TU/BAND
SW706	645 062 0829	SW TACT,MODE
SW707	645 062 0829	SW TACT,STOP
SW708	645 062 0829	SW TACT,CD P/P
SW709	645 055 7064	SW TACT,OPEN/CLOSE
SW710	645 055 7064	SW TACT,MEMORY
SW711	645 055 7064	SW TACT,RENDOM
SW712	645 055 7064	SW TACT,REPEAT
SW713	645 055 7064	SW TACT,B-SKIP
SW714	645 055 7064	SW TACT,F-SKIP
SW715	645 055 7064	SW TACT,MUTE
SW716	645 055 7064	SW TACT,X-BASS
SW717	645 055 7064	SW TACT,EQ
VR701	645 055 7309	ROTARY ENCODER,VOL701
	645 062 1413	DISPLAY BKT PLATE
	645 062 1444	DISPLAY BKT

AUDIO P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
32	614 327 0003	ASSY,PWB,AUDIO(Only initial)
CN304	645 062 0959	7P HEADER
CN305	645 027 3803	WAFER 4P
IC301	645 062 0799	IC LA4725
Q0301	645 033 3538	TR 2SD1936S AC
Q0302	645 033 3538	TR 2SD1936S AC

PHONE & REMOTE P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
42	614 327 0027	ASSY,PWB,H/JACK(Only initial)
CN801	645 062 0942	5P HEADER
JK303	645 062 1147	ST PHONEJACK
L0801	645 044 1721	FERRITE BEAD
L0802	645 044 1721	FERRITE BEAD
L0803	645 044 1721	FERRITE BEAD
RM701	645 033 3477	DIODE RPM-6938-V4,REM701
SW718	645 055 7064	SW TACT,RESET

CD MAIN P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
44	614 326 9991	ASSY,PWB,CD MAIN(Only initial)
ANT01	645 062 1161	ANTENNA JACK,FM ANT
BF101	645 051 6467	BAND PASS FILTER
C0111	403 056 7908	POLYESTER 1000P K 50V
C0118	403 057 0403	POLYESTER 0.01U K 50V
C0119	403 057 0403	POLYESTER 0.01U K 50V
C0122	645 055 6791	POLY CAP 390PF
C0147	403 058 8200	POLYESTER 1800P K 50V
C0148	403 058 8200	POLYESTER 1800P K 50V
C0303	403 059 5901	POLYESTER 0.022U K 50V
C0304	403 059 5901	POLYESTER 0.022U K 50V
C0328	403 058 5209	POLYESTER 0.15U K 50V
C0404	403 125 5507	ELECT 1000U M 16V

REF.NO.	PART NO.	DESCRIPTION
C0509	403 058 5209	POLYESTER 0.15U K 50V
C0510	403 058 5209	POLYESTER 0.15U K 50V
C0511	403 058 5209	POLYESTER 0.15U K 50V
C0512	403 058 5209	POLYESTER 0.15U K 50V
C0513	403 059 3600	POLYESTER 2200P K 50V
C0514	403 059 3600	POLYESTER 2200P K 50V
C0524	403 056 7908	POLYESTER 1000P K 50V
C0525	403 056 7908	POLYESTER 1000P K 50V
C0719	645 055 6784	GOLD CAP DX-5R5H104,GOLD CAP
C0901	403 057 2803	POLYESTER 0.1U K 50V
C0902	403 060 8205	POLYESTER 0.033U K 50V
C0907	403 060 6102	POLYESTER 3300P K 50V
C0908	403 062 0306	POLYESTER 0.047U K 50V
C0909	403 057 2803	POLYESTER 0.1U K 50V
C0914	403 057 2803	POLYESTER 0.1U K 50V
C0915	403 058 3205	POLYESTER 0.015U K 50V
C0916	403 058 9900	POLYESTER 0.018U K 50V
C0917	403 060 6102	POLYESTER 3300P K 50V
C0922	403 060 6102	POLYESTER 3300P K 50V
C0924	403 059 3600	POLYESTER 2200P K 50V
C0926	403 060 8205	POLYESTER 0.033U K 50V
C0933	403 062 0306	POLYESTER 0.047U K 50V
C1105	403 121 2807	ELECT 6800U M 16V
C1107	403 135 0004	ELECT 2200U M 25V
CF101	645 062 0751	CERAMIC FILTER
CF102	645 062 0768	CERAMIC FILTER
CF103	645 062 0768	CERAMIC FILTER
CF104	645 055 6920	CERAMIC FILTER
CN701	645 062 0966	12P HEADER
CN702	645 062 0973	13P HEADER
CN703	645 062 0980	14P HEADER
CN704	645 042 9552	HEADER 4PINS
CN706	645 034 6798	HEADER 2PINS
CN901	645 055 7163	16P FFC HEADER
CN903	645 051 6535	5P HEADER
D0101	645 055 6821	DIODE 1N4148
D0102	645 055 6821	DIODE 1N4148
D0103	645 055 6821	DIODE 1N4148
D0104	645 055 6821	DIODE 1N4148
D0105	645 055 6821	DIODE 1N4148
D0301	645 055 6821	DIODE 1N4148
D0302	645 055 6821	DIODE 1N4148
D0303	645 055 6821	DIODE 1N4148
D0304	645 055 6821	DIODE 1N4148
D0701	645 055 6821	DIODE 1N4148
D0703	645 055 6821	DIODE 1N4148
D0709	645 055 6821	DIODE 1N4148
D0710	645 055 6821	DIODE 1N4148
D0711	645 055 6821	DIODE 1N4148
D0713	645 055 6821	DIODE 1N4148
D0714	645 055 6821	DIODE 1N4148
D0715	645 055 6821	DIODE 1N4148
D0716	645 055 6821	DIODE 1N4148
D0717	645 055 6821	DIODE 1N4148
D0718	645 055 6821	DIODE 1N4148
D0719	645 055 6821	DIODE 1N4148
D0722	645 055 6821	DIODE 1N4148
D0723	645 055 6821	DIODE 1N4148
D1101	645 027 0932	RECTIFIER 1N-5401
D1102	645 027 0932	RECTIFIER 1N-5401
D1103	645 027 0932	RECTIFIER 1N-5401
D1104	645 027 0932	RECTIFIER 1N-5401
F1101	645 062 0935	GLASS FUSE,FS1101
IC101	645 055 6975	IC LA1823ESIA
IC102	645 055 7019	IC LC72131
IC401	645 055 6982	IC KIA7808P
IC501	645 055 7026	IC LC75342
IC701	645 062 0805	IC LC587008 1P46
IC702	645 055 6951	IC PST600C
IC703	645 055 6968	IC PST600L
IC901	645 055 8436	IC LA9242M
IC902	645 033 4740	IC LC78622E
IC903	645 033 4702	IC LA6541D
IC904	645 062 0782	IC LB1641



## PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
JK301	645 062 1178	SPEAKER TERMINAL
JK302	645 057 2449	OPTICAL TRANSMITTING, SUBWOOFER
JK501	645 062 1154	RCA JACK
L0102	645 062 0812	FM COIL
L0103	645 027 0345	VHF COIL
L0104	645 062 0874	CHOKE COIL 39MH
L0105	645 062 0874	CHOKE COIL 39MH
L0106	645 062 0775	IFT,OSC OA10-871104
L0107	645 027 0352	CHOKE COIL 100UH
L0108	645 044 7013	FM COIL 3.5T
L0301	645 062 0867	CHOKE COIL 10UH 2A
L0302	645 062 0867	CHOKE COIL 10UH 2A
L0303	645 062 0867	CHOKE COIL 10UH 2A
L0304	645 062 0867	CHOKE COIL 10UH 2A
L0305	645 033 3637	CHOKE COIL 10UH
L0306	645 033 3637	CHOKE COIL 10UH
L0501	645 033 3637	CHOKE COIL 10UH,FCC
L0502	645 033 3637	CHOKE COIL 10UH,FCC
L0503	645 033 3637	CHOKE COIL 10UH,FCC
L0701	645 027 0352	CHOKE COIL 100UH
L0901	645 042 0108	CHOKE COIL 26UH
L0903	645 027 0352	CHOKE COIL 100UH
Q0101	645 027 3797	TR 9018H
Q0102	645 034 7078	TR 2SC3330U
Q0103	645 027 0420	TR 8050C
Q0104	645 055 6876	TR 9018F
Q0303	645 032 9890	TR KTC-9015C
Q0304	645 033 3538	TR 2SD1936S AC
Q0305	645 033 3538	TR 2SD1936S AC
Q0306	645 034 7078	TR 2SC3330U
Q0307	645 023 6129	TR 9014C
Q0308	645 023 6129	TR 9014C
Q0309	645 032 9890	TR KTC-9015C
Q0310	645 023 6129	TR 9014C
Q0401	645 055 6883	TR KSA928A
Q0402	645 027 0420	TR 8050C
Q0403	645 023 6129	TR 9014C
Q0404	645 027 0420	TR 8050C
Q0407	645 023 6129	TR 9014C
Q0408	645 023 6129	TR 9014C
Q0409	645 055 6869	TR 8550B C
Q0410	645 055 6883	TR KSA928A
Q0705	645 055 6890	TR 2SC3400AC
Q0706	645 055 6890	TR 2SC3400AC
Q0707	645 055 6890	TR 2SC3400AC
Q0712	645 023 6129	TR 9014C
Q0713	645 023 6129	TR 9014C
Q0714	645 023 6129	TR 9014C
Q0715	645 023 6129	TR 9014C
Q0901	645 061 8246	TR 2SA608NFNPAAT
Q0903	645 033 3514	TR 2SB764D
R0409	402 071 1304	FUSIBLE RES 2.2 JA 1/4W
T0101	645 055 6944	IFT,OSC 1A612R
T0102	645 033 3866	AM COIL,IF 2070
T0801	645 027 0307	BIAS COIL,IFT 3630
TC101	645 023 6310	TRIMMER 10PF
TC102	645 023 6310	TRIMMER 10PF
VD101	645 062 0713	DIODE ISV101
VD102	645 062 0713	DIODE ISV101
VD103	645 055 6814	DIODE SVC348
X0101	645 062 0904	CRYSTAL
X0701	645 062 0898	CRYSTAL
X0702	645 062 0911	CRYSTAL 32.768KHZ
X0901	645 061 9915	RESONATOR 16.9344MHZ
ZD101	645 055 6838	ZENER 5.6V
ZD102	645 062 0744	ZENER 9.1V
ZD302	645 062 0720	ZENER 3.6V
ZD401	645 062 0737	ZENER 6.2V
ZD402	645 055 6838	ZENER 5.6V
ZD901	645 023 6105	ZENER DIODE
	645 035 0511	FUSE HOLDER MW1010K,FS1101
	645 062 0997	HSG 1P,FM ANT
	645 042 0344	CONTACT PIN,FM RT-01T-1.0B

## LED 2 P.W.BOARD ASSY

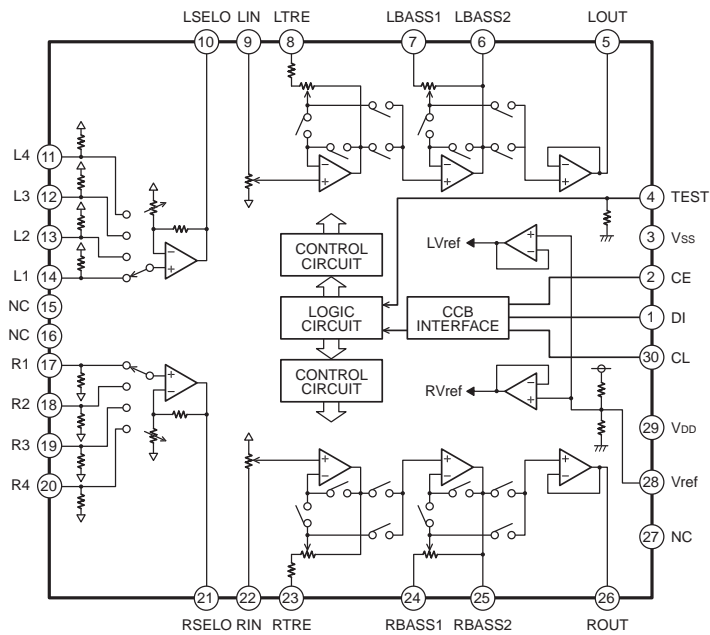
REF.NO.	PART NO.	DESCRIPTION
62	614 327 0041	ASSY,PWB,LED 2(Only initial)
LED02	645 062 0881	LED

## SPEAKER SYSTEM

REF.NO.	PART NO.	DESCRIPTION
49	645 062 1550	HIGH SPK RING,ORNAMETAL
50	645 062 1277	SPK CLOTH
51	645 062 1468	SPK NET HOLDER
52	645 062 1543	LOW SPK RING,ORNAMETAL
53	645 062 1529	SCREW PLASTIC,DECORATION
54	645 062 1604	SPK PANEL LENS
55	645 062 1475	SPK PANEL
56	645 062 0690	SPK 2
57	645 062 0706	SPK 3.5
58	645 062 1291	SPK BOX PLASTIC PIPE
59	645 062 1888	SPK BOX STAND
60	645 062 1451	SPK AVOID QUAKE RING
61	645 062 1994	SPK BOX
62	645 062 0652	SPK BOX L,LEFT
63	645 062 0669	SPK BOX R,RIGHT
S21	645 062 1116	SCR 3X15,SPK PANEL
S22	645 062 1093	SCR 2X10,SPK RING
S23	645 027 1168	SCR 3X8,SPK
S24	645 062 1130	SCR 3.5X15,SPK STAND

IC BLOCK DIAGRAM & DESCRIPTION

IC501 LC75342 (2 band equalizer)



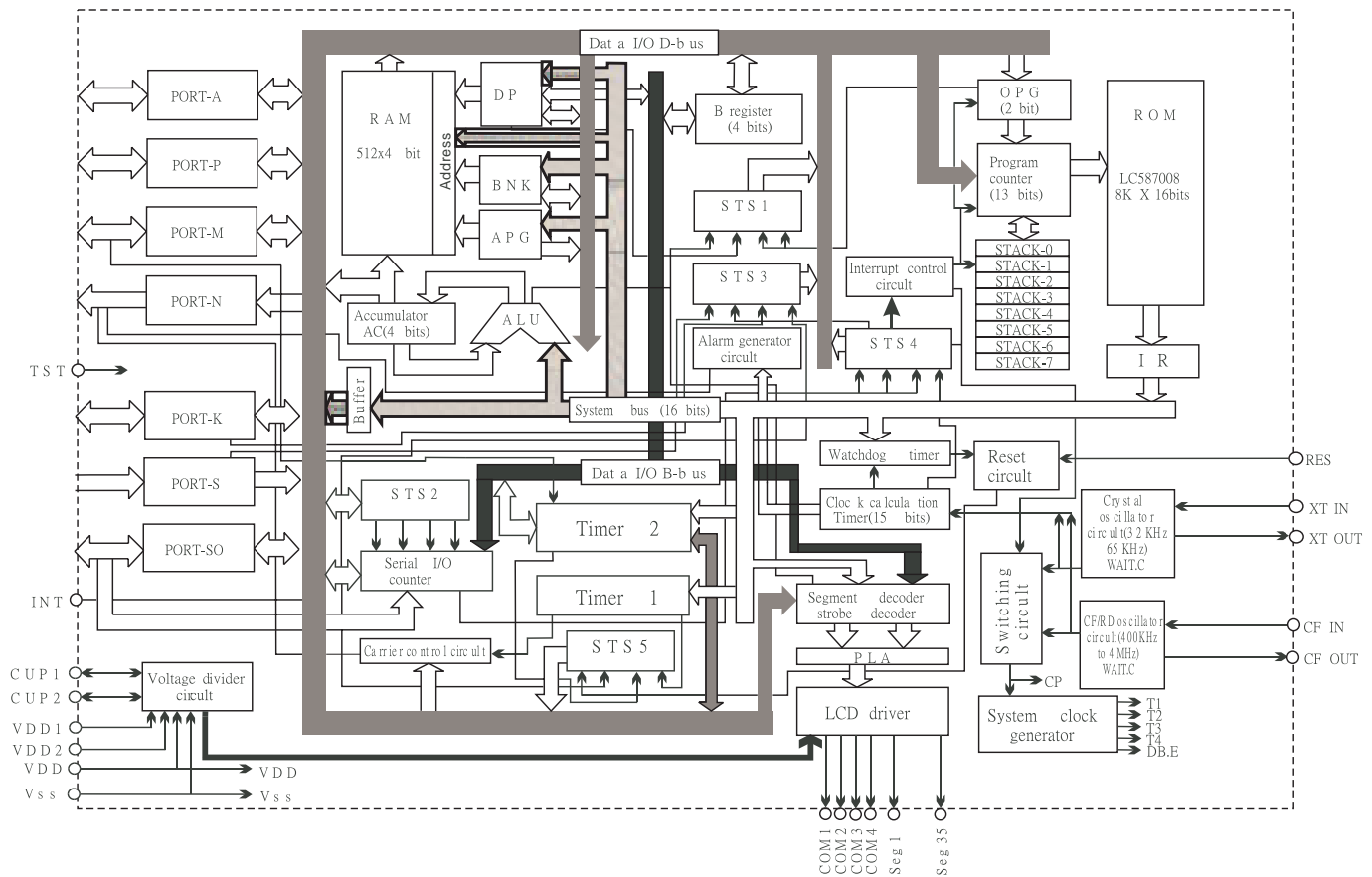
Pin functions

Pin Number	Pin	Description
14 13 12 11 17 18 19 20	L1 L2 L3 L4 R1 R2 R3 R4	Input signal connections
10 21	LSELO RSELO	Input selector outputs
7 6 24 25	LBASS1 LBASS2 RBASS1 RBASS2	Connections for the resistors and capacitors that form the bass band filters
9 22	LIN RIN	Volume control and equalizer input
5 26	LOUT ROUT	Volume and equalizer outputs
8 23	LTRE RTRE	Connections for the capacitors that form the treble band filters
28	Vref	Connection to the 0.5xVDD voltage generator circuit used as the analog signal ground. Applications must connect a capacitor of about 10 uF between this pin and Vss to exclude power supply ripple.
3	Vss	Ground
29	VDD	Power supply
2	CE	Chip enable Data is written to the internal latch when this pin goes from high to low. The internal analog switches operate at this point. Data transfer is enabled when this pin is high.
1 30	DI CL	Serial data and clock inputs used for IC control.
4	Vss	Electronic volume and tone control testing This pin must be tied to Vss during normal operation.
15 16 27	NC	Unused These pins must be left open or connected to Vss during normal operation.



# IC BLOCK DIAGRAM & DESCRIPTION

## IC701 LC587008 (4bit MICON)



Pin Functions

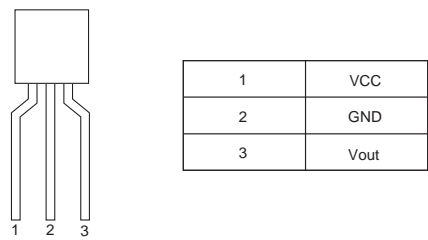
Pin	I/O	QIP-80 Pin No.	Function	Option	At reset
V <sub>DD</sub>	—	24	Power supply		
V <sub>SS</sub>	—	23			
V <sub>DD1</sub>	—	22	LCD drive power supply		
V <sub>DD2</sub>	—	21			
CUP1	—	3	Switching pin used to supply the LCD drive voltage to the VDD1 and VDD2 PINS.		
CUP2	—	4	• Connect a nonpolarized capacitor between CUP1 and CUP2 when 1/2 or 1/3 bias is used. • Leave open when a bias other than 1/2 or 1/3 is used.		
CFIN	Input	25	System clock oscillator connections • Ceramic resonator connection (CF specifications) • RC component connection (RC specifications) • External signal input pin (CFOUT is left open) This oscillator is stopped by the execution of a STOP or SLOW instruction.	• CF specifications • RC specifications • External Specifications • Not used	
CFOUT	Output	26			
XTIN	Input	20	Reference calculation/clock specification (LCD alternating frequency), system clock oscillator • 32 kHz crystal resonator connection • 65 kHz crystal resonator connection This oscillator is stopped by the execution of a STOP instruction.	• 32k specifications • 65k specifications • 38k specifications • Not used	
XTOUT	Output	19			
S1	Input	27	Input-only ports • Input pins used to read data into RAM	• Transistor to hold a low or high level	
S2	Input	28	• Built-in 7.8 ms and 1.95 ms input-mode chatter rejection circuits	• Selection of either pull-up or pull-down resistor	Note: These pins go to the floating state when reset is cleared.
S3	Input	29	• Built-in pull-up/pull-down resistors		
S4	Input	30	Note: The 7.8 ms and 1.95 ms times are the times when f <sub>0</sub> is 32.768 kHz.		
K1	I/O	31	I/O ports • Input pins used to output read data into RAM	• Transistors to hold a low or high level	
K2	I/O	32	• Output pins used to output data from RAM	• Selection of either pull-up or pull-down resistor	Note: These pins go to the floating state when reset is cleared.
K3	I/O	33	• Built-in 7.8 ms and 1.95 ms input-mode chatter rejection circuits.	• Input mode	
K4	I/O	34	The selection of 7.8 or 1.95 ms is linked to that for the S ports. Note: The 7.8 ms and 1.95 ms times are the times when f <sub>0</sub> is 32.768 kHz.	• Output latch data is set high.	
M1	I/O	35	I/O ports • Input pins used to read data into RAM		
M2	I/O	36	• Output pins used to output data from RAM		
M3	I/O	37	• M4 is used as the external clock input pin in Tm2 mode 3.		
M4	I/O	38	*The minimum period for the external clock is twice the cycle time. • Built-in pull-up/pull-down resistors		
A1	I/O	11	I/O ports • Input pins used to read data into RAM		
A2	I/O	12	• Output pins used to output data from RAM		
A3	I/O	13	• Built-in pull-up/pull-down resistors		
A4	I/O	14			
P1	I/O	15	I/O ports		
P2	I/O	16	Function: The same as pins A1 to A4		
P3	I/O	17			
P4	I/O	18			

Continued from preceding page.

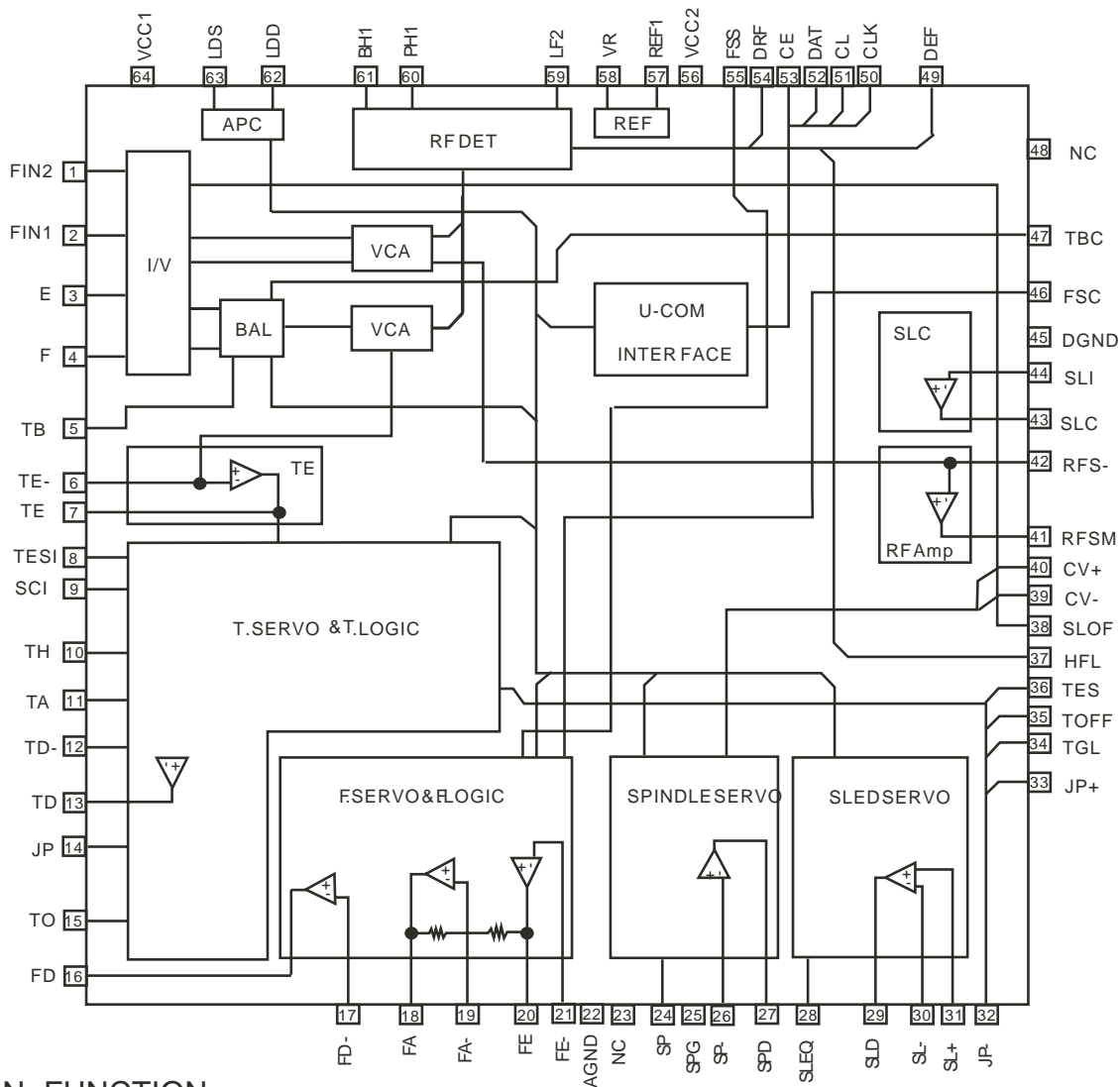
Pin	I/O	QIP-80 Pin No.	Function	Option	At reset
So1	I/O	7	I/O ports Function: The same as for pins A1 to A4. Pins So1 to So3 area also used for the serial interface.	• Transistors to hold a low or high level • Selection of either pull-up or pull-down resistors • Internal serial clock • Divisor selection	The same as for K1 to K4
So2	I/O	8			
So3	I/O	9			
So4	I/O	10			
N1	Output	39	Output-only ports • Output pins used to output data from RAM	• Pins N1 to N4 output circuit type: I CMOS II N-channel open drain	The output levels on pins N1 to N4 can be specified as an option
N2	Output	40	• An alarm signal can be output from pin N4. (Note that this is only when the N4 output latch is slow.)		
N3	Output	41	• An alarm signal modulated at 1.2 or 4 kHz can be output. (These frequencies are output when f <sub>0</sub> is 32.768 kHz.)	• Pins N1 to N4 output level: I High level II Low level	
N4	Output	42	• A carrier signal can be output from N3. (Note that this is only when the N3 output latch is slow.)		
INT	Input	6	Input ports • External interrupt request inputs • Input pins used to read data into RAM • Input detection can be performed on either rising or falling edges. • Built-in pull-up/pull-down resistors	• Transistors to hold a low or high level • Selection of either pull-up or pull-down resistors • Signal conversion (rising/falling) selection	
RES	Input	5	LSI internal reset input • The reset input level can be selected to be either high or low. • Built-in pull-up/pull-down resistors • Note: The reset pulse must be at least 500 μs.	• Only when the input resistor open specification is selected	
TST	Input	43	Test input • QIP80 products: Connect to Vss. • Chip products: Leave open or connect to Vss.		
Seg1, Seg2 to Seg35	Output	44, 45 to 78	LCD panel drive/general-purpose output — LCD panel drive I STATIC II 1/2 bias-1/2 duty III 1/2 bias-1/3 duty IV 1/2 bias-1/4 duty V 1/3 bias-1/3 duty VI 1/3 bias-1/4 duty Types I to VI can be specified as mask options. — General-purpose output mode I CMOS II P-channel open drain III N-channel open drain Types I to III can be specified as mask options. • LCD's general-purpose output control is handled by the segment PLA, and thus program control is not required. • These pins support output latch control on reset and in standby states when the oscillators are stopped. • Arbitrary combinations of LCD drive and general-purpose outputs can be used.	• LCD driver/general-purpose output switching • LCD drive type switching — STATIC — 1/2 bias-1/2 duty — 1/2 bias-1/3 duty — 1/2 bias-1/4 duty — 1/3 bias-1/3 duty — 1/3 bias-1/4 duty • General-purpose output circuit switching — CMOS — P-channel open drain — N-channel open drain • Output latch control in standby modes	• LCD drive — All segments on — All segments off • Determined by mask options • General purpose outputs — High level — Low level Determined by mask options Note: When a combination of LCD drive and general-purpose outputs, the output state is either: — All high level — All off level • These pins go to the static drive mode during the reset period.
COM1	Output	2	LCD panel drive common polarity outputs The table below shows how these pins are used depending on the duty used. (Values for alternating frequency reflect a typical specification of 32.768 MHz for f <sub>0</sub> .)		The static drive waveform is output during the reset period. • There are cases where the alternating frequency stops for the CF-RC and external clock specifications. (These cases differ depending on option specifications.)
COM2	Output	1			
COM3	Output	80			
COM4	Output	79			
Alternation frequency					
32 Hz					
32 Hz					
42.7 Hz					
32 Hz					

IC BLOCK DIAGRAM & DESCRIPTION

IC702 PST600 (Regulator)



IC901 LA9242 (Servo)

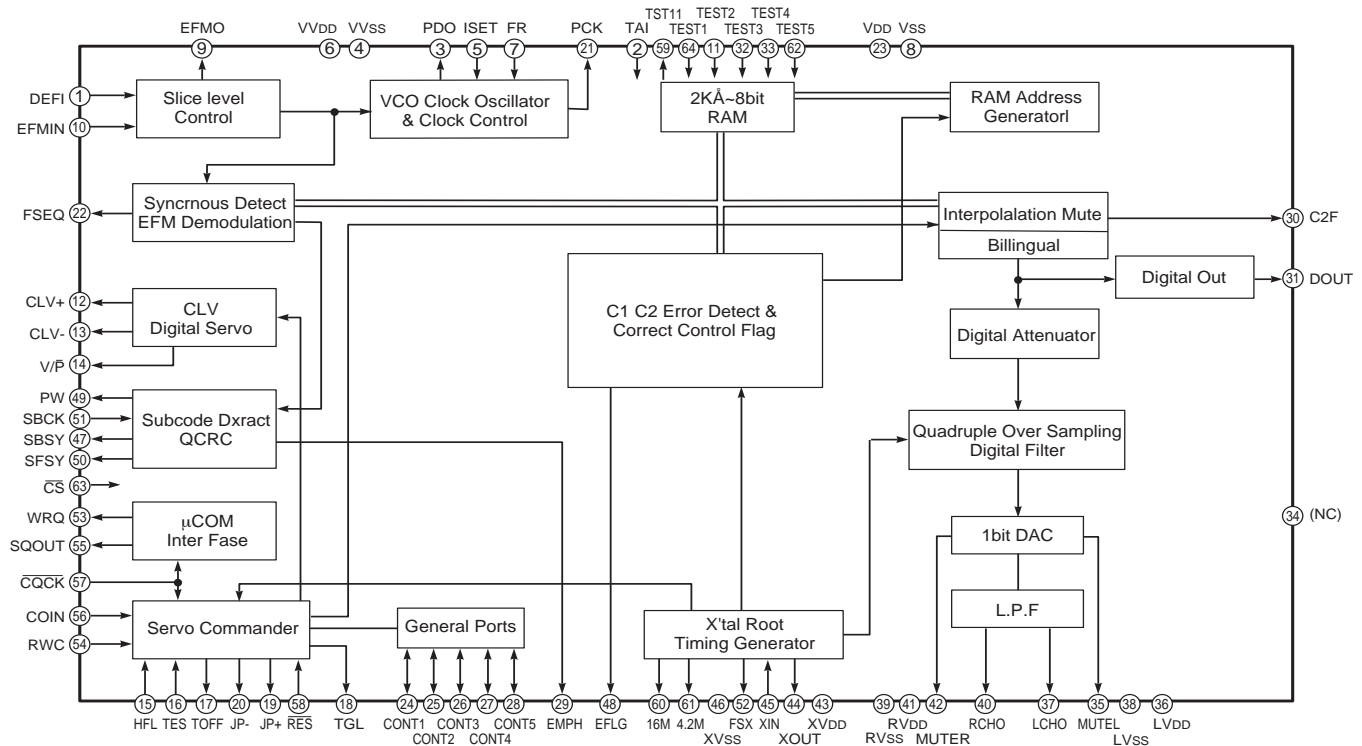


PIN FUNCTION

1	FIN2	11	TA	21	FE-	31	SL+	41	RFSM	51	CL	61	BH1
2	FIN1	12	TD-	22	AGND	32	JP-	42	RFS-	52	DAT	62	LDD
3	E	13	TD	23	NC	33	JP+	43	SLC	53	CE	63	LDS
4	F	14	JP	24	SP	34	TGL	44	SLI	54	DRF	64	Vcc1
5	TB	15	TO	25	SPG	35	TOFF	45	DGND	55	FSS		
6	TE-	16	FD	26	SP-	36	TES	46	FSC	56	Vcc2		
7	TE	17	FD-	27	SPD	37	HFL	47	TBC	57	REF1		
8	TESI	18	FA	28	SLEQ	38	SLOF	48	NC	58	VR		
9	SCI	19	FA-	29	SLD	39	CV-	49	DEF	59	Lf2		
10	TH	20	FE	30	SL-	40	CV+	50	CLK	60	Ph1		

# IC BLOCK DIAGRAM & DESCRIPTION

## IC902 LC78622 (Digital Signal Processor)

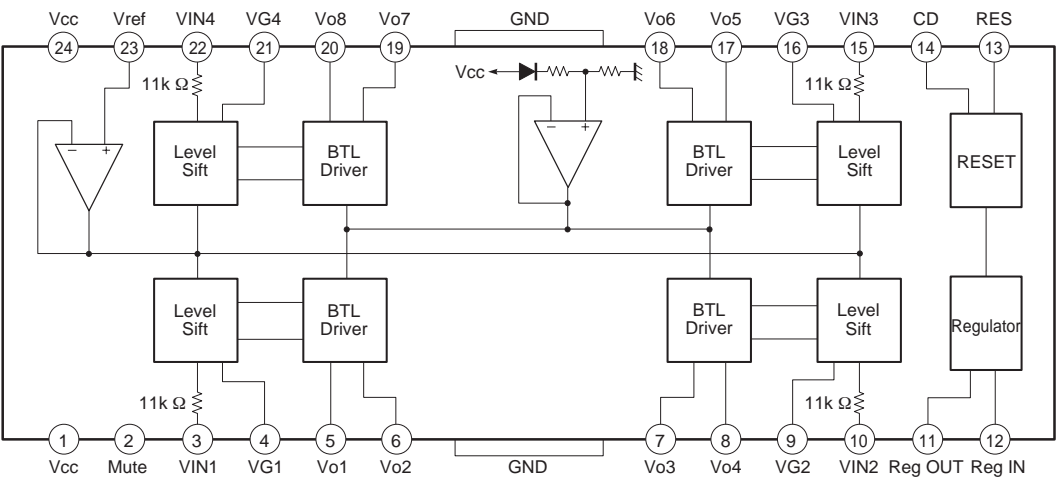


No.	Pin Name	I/O	Function
1	DEFI	I	Input terminal for detect signal of defect
2	TAI	I	Input terminal for test.
3	PDO	O	The phase comparison output terminal for external VCO control.
4	VVSS	-	Ground terminal for built-in VCO
5	ISSET	I	Resistance connection terminal for electric current adjustment of PDO output.
6	VVDD	-	Built-in VCO power supply terminal.
7	FR	I	VCO frequency range adjustment.
8	VSS	-	Ground for Digital
9	EFMO	O	EFM signal output terminal for slice level control.
10	EFMIN	I	EFM signal input terminal for slice level control.
11	TEST2	I	TEST pin. Normal time is non connection.
12	CLV+	O	Output terminal for Disc motor control.
13	CLV-	O	Output terminal for Disc motor control.
14	V/P	O	Change of rough servo / phase control Rough servo : "H", Phase control : "L"
15	HFL	I	Input terminal of track search signal.
16	TES	I	Input terminal of tracking error signal.
17	TOFF	O	Output terminal of tracking off.
18	TGL	O	Output terminal for change of tracking gain.
19	JP+	O	Output terminal for tracking jump control.
20	JP-	O	Output terminal for tracking jump control.
21	PCK	O	Clock monitor output terminal for EFM data playback. (4.3218 MHz)
22	FSEQ	O	Output terminal for detect of SYNC signal.
23	DVDD	-	+5V
24	CONT1	I/O	This output can control at serial control from micro processor.
25	CONT2	I/O	
26	CONT3	I/O	
27	CONT4	I/O	
28	CONT5	I/O	
29	EMPH	O	Output terminal of de-emphasis monitor . "H" : de-emphasis
30	C2F	O	Output terminal of C2 flag
31	DOUT	O	Output terminal of digital out

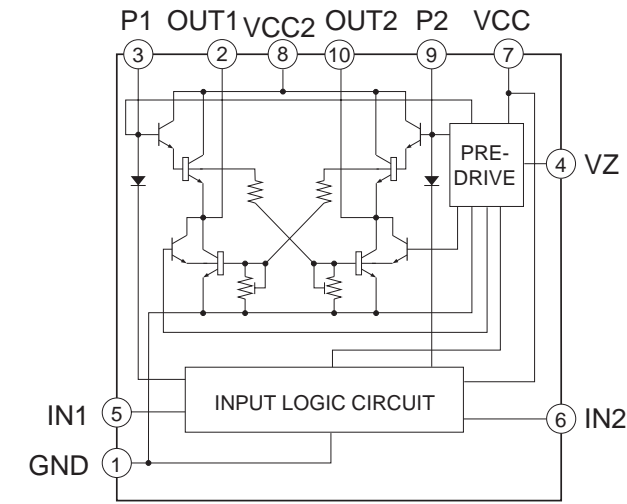
No.	Pin Name	I/O	Function
32	TEST3	I	Test pin.
33	TEST4	I	Test pin.
34	NC	-	Non connection.
35	MUTEL	O	Mute output terminal for L-ch
36	LVDD	-	Power supply for L-ch
37	LCHO	O	Output terminal for L-ch
38	LVSS	-	GND for L-ch
39	RVSS	-	GND for R-ch
40	RCHO	O	Output terminal for R-ch
41	RVDD	-	Power supply for R-ch
42	MUTER	O	Mute output terminal for R-ch
43	XVDD	-	Power supply of crystal oscillation
44	XOUT	O	Connection terminal of crystal oscillation (16.9344MHz)
45	XIN	I	Connection terminal of crystal oscillation (16.9344MHz)
46	XVSS	-	GND of crystal oscillation
47	SBSY	O	Output terminal for synchronizing signal of sub-cord block
48	EFLG	O	Output terminal for correction monitor of C1, C2, Single and Double
49	PW	O	Output terminal for sub-cord of P, Q, R, S, T, U and W
50	SFSY	O	Output terminal for synchronizing signal of sub-cord frame
51	SBCK	I	Input terminal for readout clock of sub-cord
52	FSX	O	Output terminal of Synchronizing signal (7.35kHz)
53	WRQ	O	Output terminal for standby of sub-cord Q output
54	RWC	I	Input terminal of read / write control
55	SQOUT	O	Output terminal of sub-cord Q
56	COIN	I	Input terminal of command from micro processor
57	CQCK	I	Clock input for reading sub-cord from SQOUT
58	RES	I	Reset (turn on : L)
59	TST11	O	Test pin
60	16M	O	16.9344MHz
61	4.2M	O	4.2336MHz
62	TEST5	I	Test pin
63	CS	I	Chip select terminal
64	TEST1	I	Test pin

IC BLOCK DIAGRAM & DESCRIPTION

IC903 LC6541D (4 ch. Bridge CD Driver)

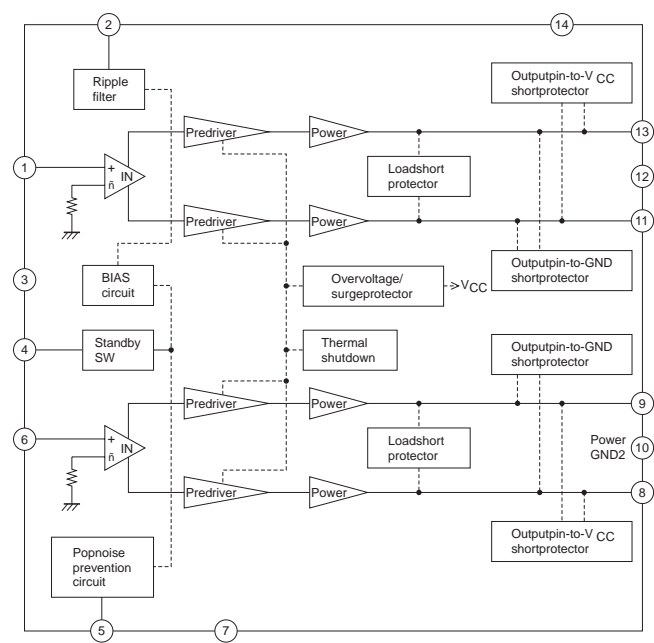


IC904 LC1641 (Motor Driver)

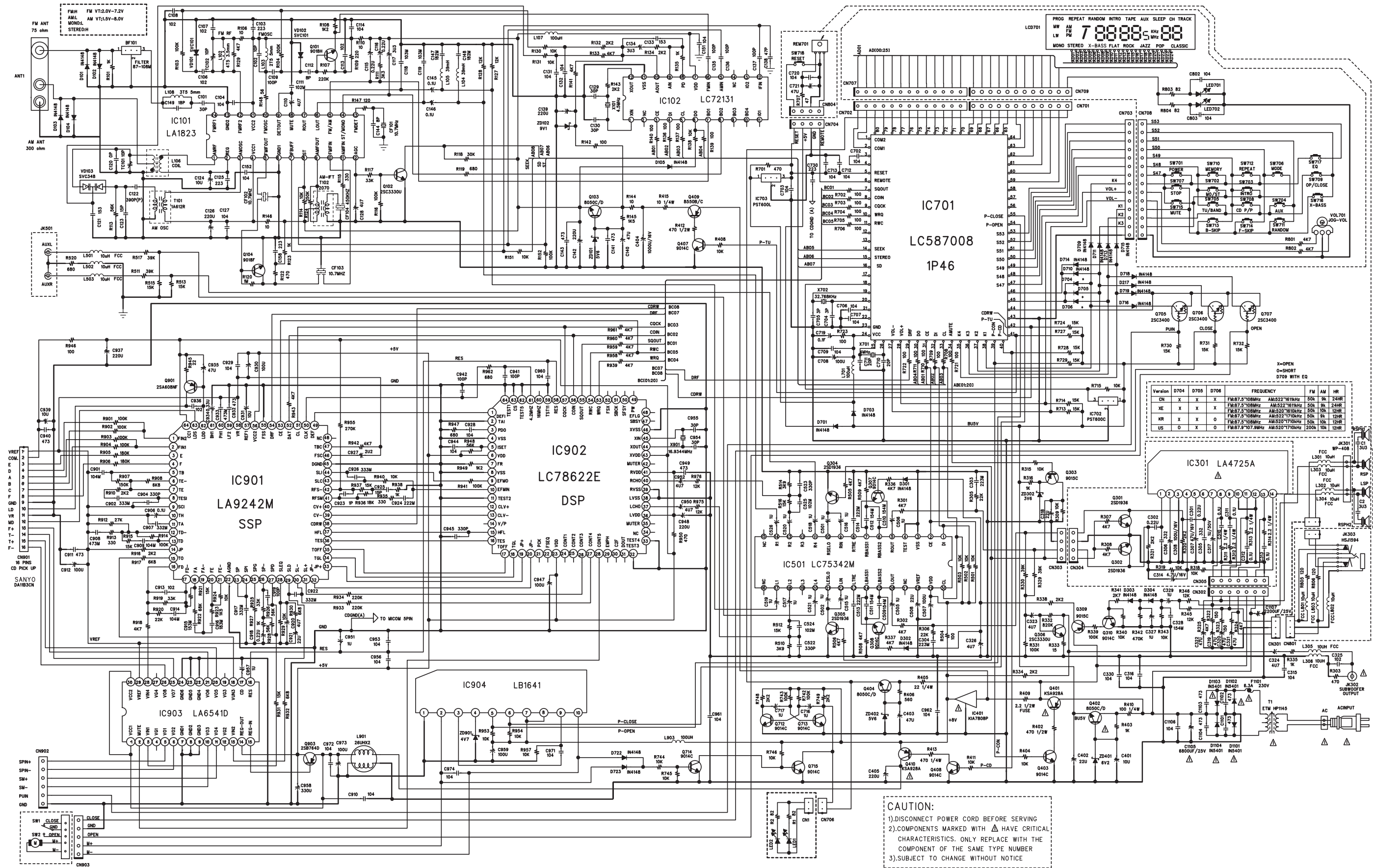


Input		Output		Action
IN1	IN2	OUT1	OUT2	
0	0	0	0	Brake
1	0	1	0	Normal(Reverse)Rotary
0	1	0	1	Reverse(Normal)Rotary
1	1	0	0	Brake

IC301 LA4725 ( Power)

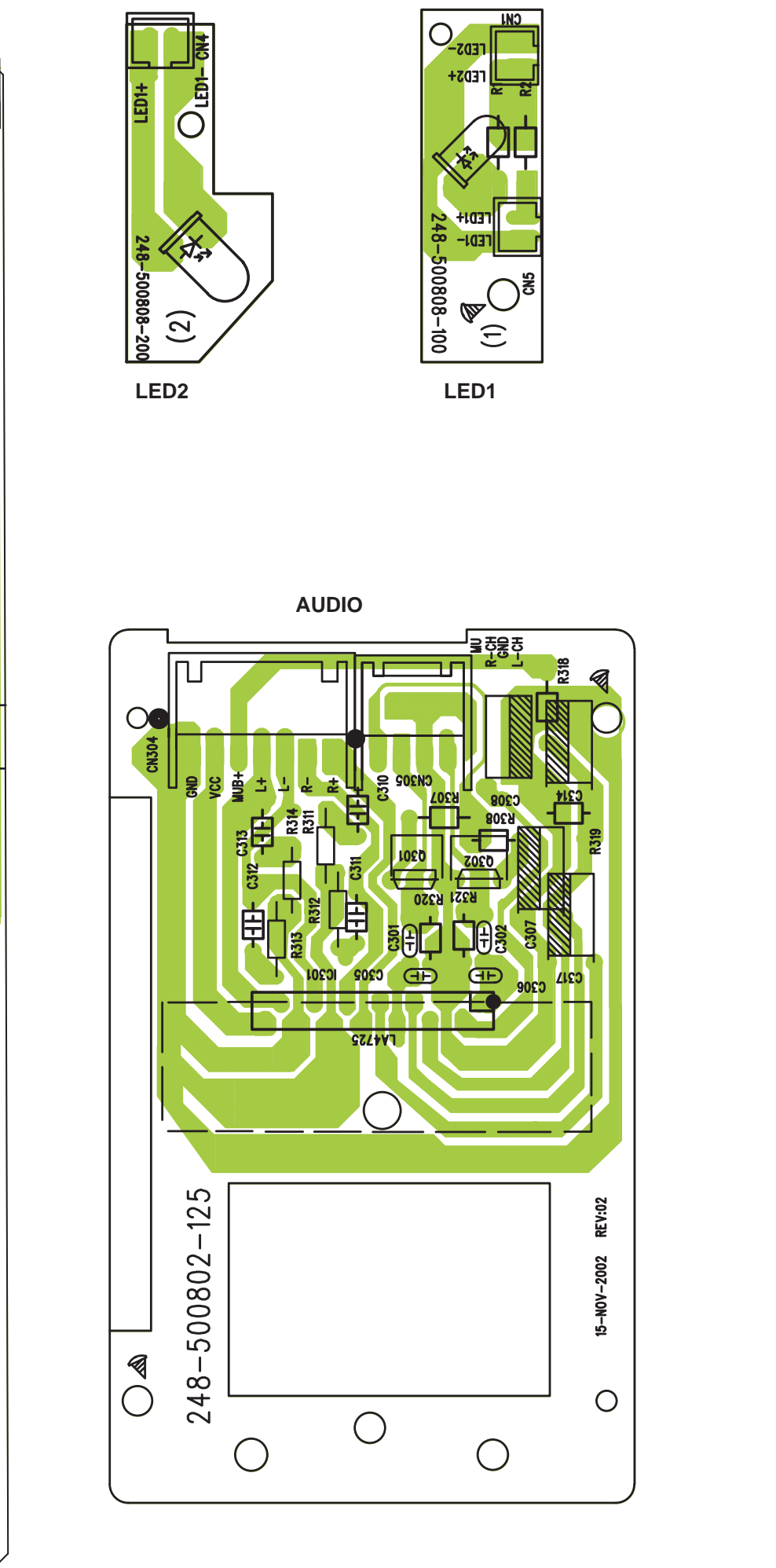


SCHEMATIC DIAGRAM (MAIN)



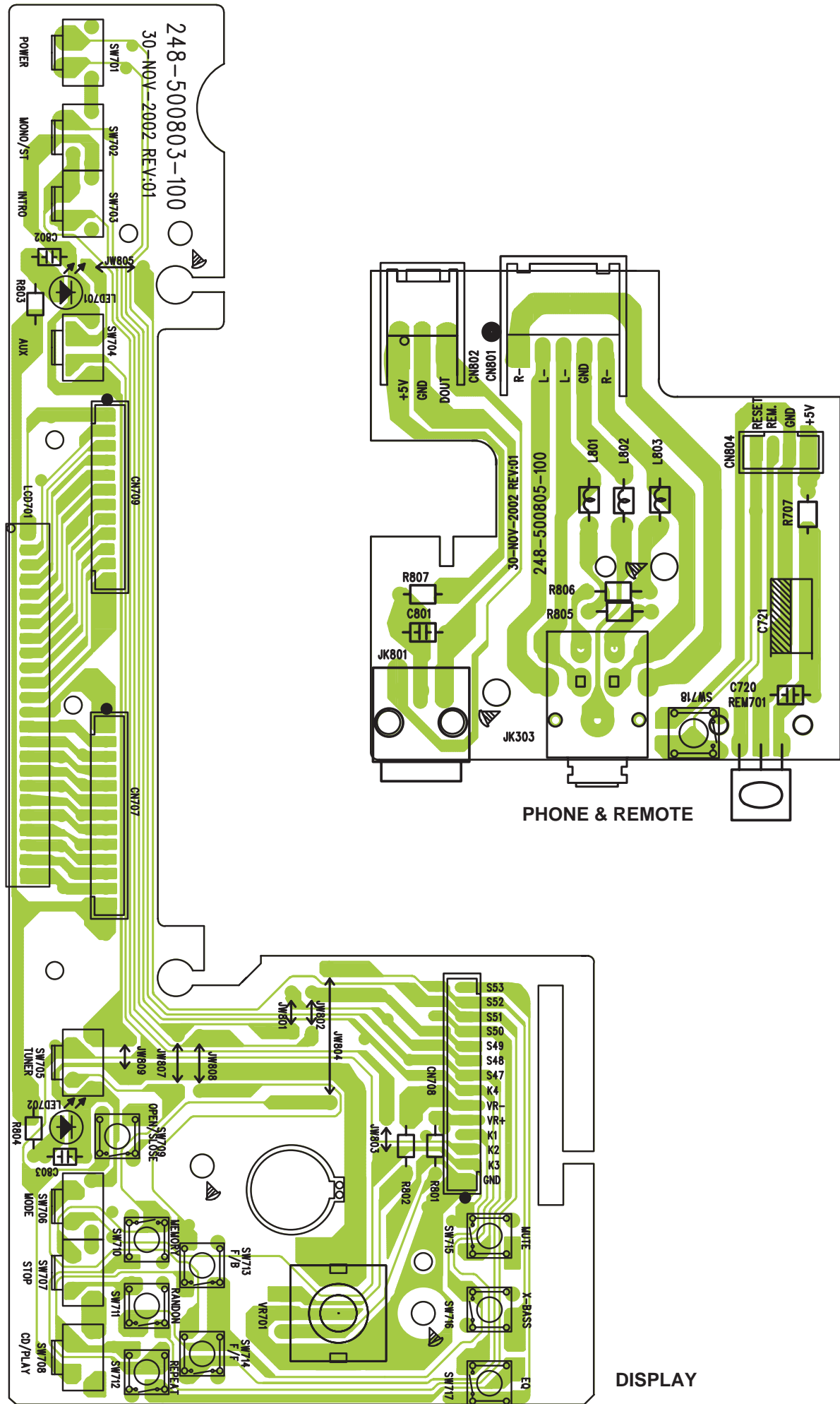
This is a basic schematic diagram.



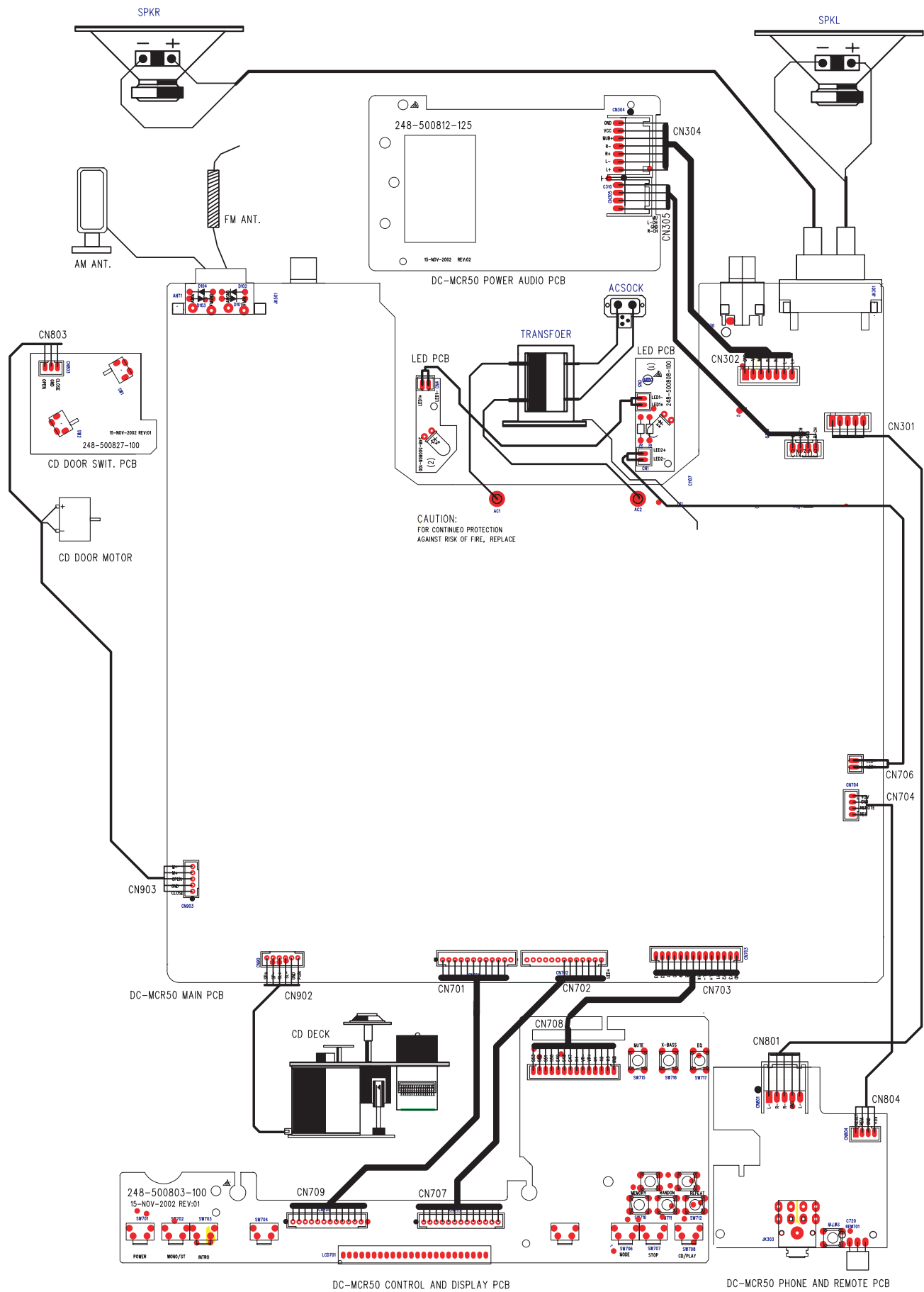




# WIRING DIAGRAM (DISPLAY and PHONE & REMOTE )



WIRING CONNECTION



This is a basic wiring connection .



SANYO Electric Co., Ltd.  
OSAKA, JAPAN